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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/654,792 | 09/03/2003 | John A. Corey | 21535-006 CON | 6954 |

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MINTZ, LEVIN, COHN, FERRIS, GLOVSKY & POPEO, P.C.
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EXAMINER

PARSONS, THOMAS H

ART UNIT PAPER NUMBER

1745

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/654,792

Applicant(s)

COREY ET AL.

Examiner

Thomas H. Parsons

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 47-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 57 and 58 is/are allowed.
- 6) ☒ Claim(s) 47-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
Page 15, line 20, suggest changing "cathode chamber" to --anode chamber--.
Appropriate correction is required.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "34" has been used to designate both an **exhaust outlet** (see page 10, line 1 and page 10, line 28 through page 11, line 1) and a **gas plenum** (see page 10, line 21). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or

Art Unit: 1745

improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 47-56 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4, 12, 15 and 25 of U.S. Patent No. 6,632,553. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 1 of US. Patent No. 6,632,553 discloses a valve for controlling a flow of gas from the anode chamber to the cathode chamber whereas instant claims 47, 49 and 50 disclose a valve for regulating flow. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made that controlling flow would have provided for regulating flow.

Claim 48 of the instant application recites "wherein no liquid is communicated between the anode chamber and the cathode chamber. U.S. Patent '553 is silent as to this limitation, However, because both fuel cell systems are structurally similar, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have expected both systems to provide for no liquid communicated between the anode chamber and the cathode chamber.

Claims 51 and 52: Claim 4 of U.S Patent '553 discloses methanol whereas the instant application discloses a concentrated methanol solution wherein the concentration is greater than 50%. However, it would have been within the skill of one having ordinary skill in the art at the

Art Unit: 1745

time the invention was made to have adjusted the methanol concentration so to minimize methanol crossover.

Claim 53: Claim 15 of U.S. Patent '553 discloses a fuel concentration sensor in the anode chamber.

Claim 54: Claim 1 and 12 of U.S. Patent discloses an anode chamber having a fuel and a cathode chamber in gaseous communication with the anode chamber via a conduct but is silent as to the limitation "wherein no liquid communication occurs between the anode chamber and the cathode chamber". However, because both fuel cell systems are structurally similar, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have expected both system to provide for no liquid communicated between the anode chamber and the cathode chamber.

Claim 55 and 56: Claim 25 of U.S. Patent '553 discloses a method for reducing the amount of water in a cathode chamber whereas the instant claims disclose a method for encouraging water and air exchange. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have expected the method of U.S. Patent '553 to provide the claimed method as both method steps are similar.

Allowable Subject Matter

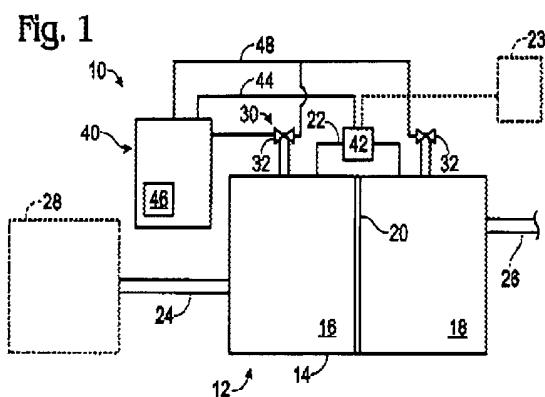
5. Claims 47-56 are allowable over the prior record but would require a timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) to overcome the nonstatutory double patenting rejection as set forth above.

6. Claims 57 and 58 are allowable over the prior art of record.

Allowable Subject Matter

7. The following is a statement of reasons for the indication of allowable subject matter:

U. S. Patent No. 6,242,120 (Herron) in Figure 1 teaches a fuel cell system that is provided with an anode chamber (16), a cathode chamber (18), and an electrolytic membrane (20) separating the two chambers and a purge assembly (30) including purge valves (32) that may be selectively opened to depressurize the fuel cell and thereby exhaust gases and water built up within the anode and/or cathode chamber.

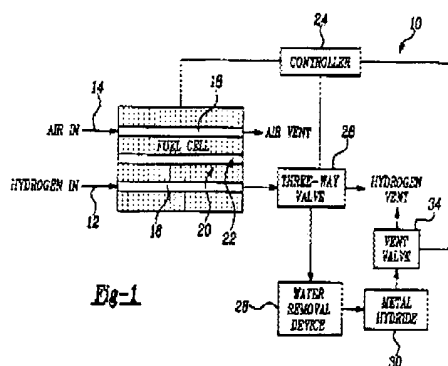


Herron fails to teach or suggest, however, valves that are able to control the flow of gases from the anode chamber to the cathode chamber. Nor does Herron teach or suggest a method or apparatus for collecting effluent gas produced in the anode chamber and exhausting the same through the cathode chamber.

U.S. Patent 6,406,805 (James et al.) discloses in Figure 1 a fuel cell 10 provided with a hydrogen inlet 12 and oxygen through air inlet 14. The hydrogen is directed to an anode passage 16 while the oxygen is directed to a cathode passage 18. A catalyst surface 20 converts the molecular hydrogen into hydrogen atoms comprising an electron and a proton. The

Art Unit: 1745

hydrogen electron becomes part of the electrical circuit and the remaining proton passes through a membrane or separator 22. The proton reacts with the oxygen in cathode passage 18 to form water.



James et al. also disclose a method of operating a fuel cell wherein excess hydrogen in an anode chamber is purged from the chamber and directed to a hydrogen storage unit. James et al. fail to teach or suggest, however, valves that are able to control the flow of gases from the anode chamber to the cathode chamber. Nor does Herron teach or suggest a method or apparatus for collecting effluent gas produced in the anode chamber and exhausting the same through the cathode chamber.

U.S. Patent No 6,436,563 (Frank et al.) teaches a fuel cell system comprising dryers connected to the stack for the removal and recovery of moisture from the anode chamber. Frank et al. fail to teach or suggest valves that are able to control the flow of gases from the anode chamber to the cathode chamber. Nor does Herron teach or suggest a method or apparatus for collecting effluent gas produced in the anode chamber and exhausting the same through the cathode chamber.

Art Unit: 1745

Further, the prior art references of record fail to reveal or explicitly teach, alone or in combination, a method of and apparatus for directing an effluent gas produced in an anode chamber out of a fuel cell via a nozzle provided in the outlet in a cathode chamber at a pressure induced by the flow of effluent gas.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H. Parsons whose telephone number is (571) 272-1290. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas H Parsons
Examiner
Art Unit 1745

Pat Ryan
SEP - 17-17742